An Epitome of Reference

for the Students

of the

Cincinnati School of Embalming.

PREFACE.

In preparing this work of instructions, the authors have tried to reproduce their lectures, not in detail, but the substance of them, and in so doing, have tried to make everything clear, distinct and comprehensive. The modes of treatment given are all practical, and are from our own experiences. If we have omitted anything that should have been added, it was not intentional. We trust that this little work will fall into no hands only those for whom it was intended, viz: The students of the Cincinnati School for Embalming, and will be used for the purpose intended and prove an epitome of reference. Very truly,

THE AUTHORS.

FIRST LECTURE.

To be a good physician it is necessary to have a thorough knowledge of the structure of the human body. To be a thorough embalmer requires also a knowledge of some of the parts and organs of the body, and the way by which they are supplied by the arteries and veins. It is well right here to explain the difference between an artery and vein, in respect to their use, appearance, etc. In life the arteries carry the blood from the heart and distribute it to all parts of the body to supply and nourish the tissues by means of the capillaries. These same capillaries continue into the capillaries that make up the veins. The veins carry the blood back to the heart to be again distributed. The main difference in the structure of a vein compared with that of an artery is: The walls are usually thinner and more flexible, and there always exists in the mouth of a vein, or where it empties into another vein, valves which prevent the return of the blood backward. Knowing positively that these valves do exist in the veins, and that in life they prevent the blood from regurgitating or flowing in a reverse way, it is natural to suppose that these same valves would obstruct the backward travel of the fluids in the veins if they were used for the purpose of injecting the body. In consideration of these facts we deem it best to discard the veins altogether for the purpose of injecting and to always use the artery. When death occurs the blood always leaves

the arteries and empties into the veins, consequently it would be better to use the artery than the vein if there was no other difference.

It is not true that every particle of blood leaves the arteries. It is especially the case with those who die suddenly that there is more left in the arteries than in those who die emaciated, and we especially request that the observance of certain points be strictly practiced in the treatment of the cases of sudden death. Owing to a greater part of the blood remaining in the body being found in the large veins, we find it advantageous to open them at times in certain places to allow the escape of the blood. There are two systems of veins in the body which we use,—one carries the blood from the surface and the other from the deep parts. We will have occasion to speak more particularly of these two systems of veins in the lecture on the femoral region.

The arteries are always accompanied by veins, and the relation of the veins to the arteries will be given with the description of the artery lectured upon.

The heart, with the arteries and veins, is regarded as the circulatory system; in life the heart being the force pump for the blood, so at death the heart must be substituted by an instrument called also a pump. The heart has nothing to do with the distribution of the fluids, except to give origin to the main arterial trunk called the aorta. The body, from the base of the neck down to the groin or lower extremity of abdomen, is called the trunk. The trunk is divided into two cavities by the diaphragm which crosses the inside of the body at the lower end of the breast bone. The cavity above

the diaphragm is called the *thoracic* cavity and contains the right and left lungs, and the heart, which is situated in a space between them The cavity below the diaphragm is called the *abdominal* cavity, and contains the liver, stomach, spleen, kidneys, intestines, and in the female the womb and bladder.

For the sake of description we say the heart has four rooms or spaces,—two upper called the right and left auricles, and two lower called the right and left ventricles.

The aorta originates at the upper and inner part of the left ventricle and passes upward toward the right, making a curve backward to the left and to the back-bone, and then passes down along the back-bone to the lower end, at which place it divides into two branches,—the right and left common iliacs. The iliac becomes the femoral at the point where it leaves the body to pass down the thigh. At the arch of the aorta we have important branches coming off: The right and left common carotids which pass up the neck on either side of the wind-pipe, and the right and left subclavians which continue into the axillaries and on into the brachials. The latter being the one used in the arm for injecting. Opposite Adam's apple the common carotid divides into the external and internal carotids,—the external to supply the neck, face and outer part of head, and the internal to supply the brain, etc. Coming down into the body or thoracic cavity we have the bronchial arteries, which supply the lungs. In the abdominal cavity we have the celiac axis, which sends a branch to the liver, called the hepatic artery; one to the stomach, called the gastric, and one to the

spleen, called the splenic. The messenteric which supplies the messentery and intestines,and the renal which supplies the kidneys.

A knowledge of the structure of the lungs and the manner in which they are supplied by the fluids is important to every embalmer. Beginning at the wind-pipe, we say that it is divided into a right and left bronchial tube, that each bronchial tube divides and sub-divides until it finally terminates in an air-cell. The bronchial arteries are distributed to the lungs in a manner similar to that of the bronchial tubes, the artery and its branches following along the outer wall of the various branches of the bronchial tubes. Now, having this knowledge of the lung, it will help you to see how we experience trouble when injecting a body dying of consumption. You can see that when a portion of the lung is destroyed it involves both the blood vessels and the air tubes, allowing the fluid to break through and to force its way up into the wind-pipe and out through the mouth. At the top of the wind-pipe there exists a structure for closing and opening it, called the epiglotis. While we are breathing it stands up, allowing the air to pass in and out of the lungs. When we swallow food or drink, the epiglotis closes down tightly, allowing the food to pass on into the stomach, and preventing any portion from passing down the wind-pipe into the lungs.

If, in embalming by the artery, the throat be completely closed by cotton, either dry or saturated with the fluid, it will fasten down the epiglotis, thereby preventing the escape of the fluid from the lungs, as in cases of consumption.

SECOND LECTURE.

To raise the femoral artery successfully, certain land-marks should be observed, which are very important and which will make the operation easy. The first one to be observed is that of Poupart's ligament which is attached internally to the upper and outer point on the public bone and externally to a process on the front portion of the hip bone. Find the center of the ligament and you will be directly over the femoral artery which passes down from behind the ligament; from that point you draw a line to the inner side of the knee joint, you will then be on a direct line with the artery.

Another land-mark, which is easy and simple, is a little valley or depression found by taking the tips of the fingers and, starting at the middle of Poupart's ligament, moving down the thigh two or three inches. The femoral artery and vein lie in this valley.

A land-mark is used by surgeons, called Scarpa's triangle, which is made by a muscle attaching itself above to the process on the front part of the hip bone and running down across the thigh to the inner side of the knee and attaching itself to the leg just below the knee. This is called the sartorius muscle, and forms the outer boundary of the triangle. Another muscle, called the adductor longus muscle, forms the inner boundary of the triangle, and is attached above to the lower part of pubic bone, and below to the middle third of the thigh

bone. The upper boundary of the triangle is made by Poupart's ligament. The femoral artery and vein pass down through the center of this triangle, dividing it into two. We do not recommend the special use of Scarpa's triangle, because it is not so simple as the two first named.

To make the incision for raising the femoral artery it is necessary to begin at a point from two to two and one-half inches below Poupart's ligament and cut down the line on an average of three inches.

To reach the artery by incision we must cut through, first the integument, and second a layer of fascia and fat; underneath which will be found another layer of fascia, which is firm and which lies over the artery and vein. The vein will be found lying either to the inner side or partially under the artery at the place where the incision is made. Before cutting through the last layer of fascia you will notice a light space or line which will show where the artery is lying, provided the bottom of the incision is not filled or stained too much with blood; seeing this line, cut directly into it, spread open the incision; take the anurismal hook; pass it under the artery between it and the vein; bring the artery to the surface by using the handle of your scalpel, or anything which is most convenient for the time; let the artery remain over the instrument used for the purpose; when ready, take the forceps, pinch up a portion of the artery; cut a small incision across the artery with scalpel or scissors; then make one lengthwise of the artery from an eighth to a quarter of an inch; insert the tube upward toward the body; have the ligature or thread put under double by the anurismal hook, which should

be withdrawn, leaving two ligatures,—one to be tied around the artery and the tube—the other to be tied around the artery below the incision. When the fluid has made its appearance at that place, which is the indication that the leg below the point of injection is being supplied with the fluid.

As we said in our first lecture, the arteries are accompanied by veins. The femoral artery is accompanied by the femoral vein. In life, we told you, it is the office of the arteries to distribute the blood to all parts of the body, while it is the office of the veins to carry the same blood back to the heart; also, at death, the blood leaves the arteries and runs into the veins,—this is the rule. It is also true that a greater quantity of the blood is found in the veins; but, that the arteries are entirely empty without any blood remaining in them is seldom if ever found to exist. Owing to this fact we will have some important suggestions to make farther on in this work.

If it should be desired to draw off the blood from the leg and trunk, an incision can be made in the femoral vein near the point of opening in the femoral artery. By elevating the foot and leg, and by wrapping them tightly with a bandage, applying it from the foot upward, the blood can be forced toward and out of the opening made in the vein. If the body is also elevated it will afford an opportunity for the blood remaining in the large venous trunk to escape. The opposite leg should be treated in the same way.

THIRD LECTURE.

To raise the brachial artery it is very important that certain things should be observed In the first place we must locate the inner border of the bi-ceps muscle. It is also very important to remember that the brachial artery is always accompanied by two veins,—one on either side of the artery. These veins are always present and will assist in distinguishing the artery from some other vessel. The brachial artery is much smaller than the femoral or carotid arteries, and does not usually possess that characteristic tube-like appearance. Take a piece of rubber tubing and draw it over your finger so as to flatten it, and you will observe the center will be sunken and the edges round. This is nearest the description of a large artery of anything that it can be compared to.

In locating the inner border of the bi-ceps muscle it is important always to allow the muscle to remain in its natural position, because the brachial artery and its accompanying veins always lie close to the inner and lower border of the muscle, the shape of the muscle governing the exact position of the artery. In cutting down upon the artery we almost invariably come in contact with an onject which, at first sight, looks very much like an artery because of its size and general appearance, as well, also, as its location. It is the "median nerve." This nerve has frequently been taken for the brachial artery, and the mistakes are only discovered

after inserting a tube and attempting to inject. Now, by having a proper knowledge of the peculiar structure and appearance of a nerve, there is no necessity of ever making this mistake. It will be in order here to describe a nerve or "nerve cord." A nerve cord consists of a bundle of fibers resembling threads enclosed in a thin transparent covering or sheath. By examining the nerve closely you can see little stripes running lengthwise in it which show, or correspond to the fibers of the nerve beneath the covering; by stripping off the covering the fibers will show themselves very distinctly, proving beyond a doubt that you are dealing with a nerve. Again, the nerve cord is usually more round, firm and hard than the artery, so that with these explanations there never need be any trouble to distinguish the difference between a nerve and an artery. The median nerve is usually found close to the brachial artery, but just outside of the covering of the artery. Sometimes the nerve is found lying side by side and in the same sheath or covering of the artery and veins. However, when that does occur we can readily distinguish the difference between the nerve and the artery by remembering the descriptions given above.

In the arm we sometimes find the artery very small. Occasionally there will be two instead of one in the region for making the incision. When so, they are usually small and require a very small, pointed tube for insertion. If at any time the brachial artery should prove too small for use, the middle third of the arm may be used; or the opposite arm can be tried and a little higher up than on the the first arm tried. The two brachial arteries are not necessarily alike on both sides. We have one

vein in the arm, which, on account of its size, may resemble the artery, but, as a rule, the situation of the vein when in its natural position, will suggest to you at once that it is not the artery. This is the basilic vein and is found at the bend of the elbow, and for two inches up to be very superficial, being merely in the fascia beneath the skin; but as it passes farther up it gets deeper and finally becomes as deep as the brachial artery and accompanying veins, and occasionally may be found in the same covering with them. When this is the case and you are not certain in regard to which is the artery, you can always be able to decide by the following tests: The first and quickest test is to take a long slender wire with a smooth point and insert it in an incision made in the vessel, with the point down toward the elbow; if the wire stops suddenly at the elbow, and no manipulation will cause it to pass, then you will know that it is a vein being dealt with, but if the wire passes down into the fore-arm without hard pushing, then you know that you have the artery, and no trouble need be apprehended. Another test is, to insert the tube downward toward the elbow, if no fluid will escape from the pump down into the arm you will know that you have a vein, and you must try another. You will seldom, if ever, find more than the one vessel to deceive you in the same arm.

We recommend raising the brachial artery at the lower end of the brachial region. The incision should be made from an inch and a half to two inches long; the lower end to be within three-fourths of an inch of the bend in the elbow. At this place there is usually no trouble to be had with the basilic vein, owing to its being so near the sur-

face. After raising the artery the same means are used for injecting as in the femoral region, the tube being directed upward toward the body. It is well to leave the incision open below the tube until the fluid is seen to escape from it, when it will be the indication of the presence of the fluid in the arm below. If you should not succeed in forcing fluids down into the lower part, and it is a body you may wish to keep a long time, it would be well to reverse the tube and inject down into the arm and hand to make sure that every part is all right. The same may be done when using the femoral artery under like circumstances. We recommend this artery in cases of females and in all cases of sudden death, or when a body contains the natural amount of blood. The latter being those cases which usually produce discolorations and give the most trouble. We consider it important that every student should cultivate the use of and become familiar with the peculiarities of the brachial artery.

FOURTH LECTURE.

The right common carotid artery is usually the most convenient, because the right side of the body is usually the most convenient side to work on; but it makes no difference which one of the common carotids is used so far as the result is concerned. It is very seldom that either should be used; but it is very neccessary to know how to raise it when an occasion requires it. If the case really requires the use of the brachial and it cannot be used or found, then it would be better to use the carotid rather than run the risk by using the femoral which will so often cause discolorations.

To raise the common carotid artery it is also necessary to observe certain land marks. We have only one to observe in this case, which is to find, first, the direction and location of the sterno mastoid muscle. This muscle is attached above to a process behind the ear, called mastoid process. Below, to the inner end of clavicle or collar-bone, and top of sternum or breast-bone. Find the inner border of this muscle and make the incision so that it will allow the inner border to appear. This will be between the muscle and wind-pipe. Although there is a small body lying on the side of the wind-pipe which is red and looks like flesh. -It is a gland and is the part that becomes so large in the necks of women. We have seen it in one or two instances in the necks of men. The artery and internal jugular vein lie side by side in a transparent sheath togeth-

er. The artery lying internal to the vein. You will observe that this is opposite to the arrangement in the thigh. To get to the artery to raise it we do not have the layer of fat to cut through that we find in the thigh or arm, but have the integument, and a thin muscular layer immediately beneath the integument, both being cut through without any distinction. Where this is done the inner border of the sterno-mastoid muscle shows, and is to be pressed to the outside. The space between the muscle and the wind-pipe is to be followed until the bottom is reached, then another narrow muscle is exposed, which lies on and crosses over the artery and vein; this is the omo-hyoid muscle and is attached to the hyoid-bone in the upper part of neck in the region of the throat, and below, back to the upper border of shoulder-blade or scapula. This muscle is to be cut off and pushed out of the way. The artery and vein will be seen lying side by side in a sheath together. The vein will be recognized by the presence of blood in it, giving it a bluish or a darker color than the artery. The sheath should be opened by picking it up with the forceps and splitting it with the scissors or scalpel. Raise the artery with the aneurismal hook, open it and insert the tube toward the heart, as with the other arteries. When using the common carotid artery, the internal jugular vein can be used for drawing off some of the blood from the head, when it is necessary to do so.

The operation which is the easiest for relieving the face and neck from blood is to open the external jugular vein. To find the location of this vein, a line should be drawn from about the angle of the jaw to the middle of the collar-bone; then begin

one-fourth of an inch back of this line, cut an incision through the skin and muscle from three-fourths to one inch in length, so that the lower end of the incision will come just to the upper border of the collar-bone; from that point make another incision of the same length on the upper border of the collar-bone forward; take the forceps and pinch up the integument right at the angle of the two incisions; dissect back the flap and then the lower end of external jugular vein will be exposed and can with ease be tapped. Cases requiring the use of this vein must always be well elevated at the head, keeping the neck straight with the body. It would be well to allow this vein to remain open for some little time before injecting any fluid, unless the body is decomposing very rapidly and requires the immediate application of the fluids. In that case put in a small quantily, then let it remain a while, giving a chance for as much blood to escape as possible. If the fluids should run rapidly from the vein you will have to close it by ligating the vein before injecting more. However, if you have a large oil-cloth to protect surroundings you can allow it to run as much as you may think necessary.

IN ORDINARY CASES.

When the body has died from a lingering disease and it is emaciated and contains but little blood; place it on an incline with the head and shoulders eight to twelve inches higher than the feet. If you do not wish to take up an artery, inject a pint of fluid into the stomach through the mouth or nostrils,—for adults use a No. 12, and for children a No. 9 or 10 catheter,—by bending the wire to the proper curve, passing it down the mouth, if open; if closed, use the nostril, until the bend in the catheter has started down the throat, then hold on to the wire with one hand, and with the other shove the catheter down the throat; withdraw the wire, put the tube of the pump in and inject slowly.

Should there be any gases, either in the thoracic or abdominal cavity, relieve them by means of the trocar, using it carefully. Push the rod in after you have started the point of the trocar through the wall of the abdomen. The large rubber tube may be attached to the trocar to convey the gases to a vessel, containing some water and a little fluid to destroy the unpleasant odor, after which inject from one to two pints of fluid.

Should the face and hands be discolored, cover them with a cloth or towel saturated with the fluid. If a delicate skin, or a child, dilute with one-third water. It is not necessary to make any application to the abdomen externally. Keep the hands up higher than the elbows.

CONSUMPTION.

These cases are common to every part of the globe, and, as a rule, are easily kept without much trouble, yet we sometimes find one that is very troublesome indeed. There is but little left save the skin and bones, and yet that little begins to create a turmoil almost as soon as life is extinct. We would recommend you to turn the body over, lowering the head, and let what will run out; replace the body on an incline of fifteen to twenty-four inches, and at once close the throat with cotton or a sponge. If a lady, use the brachial artery; if a male, you can generally, with safety, use the femoral artery, injecting one or two quarts of fluid. By this means all the organs of both the thoracic and abdominal cavities are filled.

The corpse can be put into the casket in a few hours and will be a fine subject for days. We would recommend, in this case as in nearly all others, the use of the eye-caps to hold the eye up to its natural fullness.

DROPSY.

There are many kinds of dropsical cases, which are the result of diseases of the liver, heart, kidneys, and the last stages of consumption. When both thoracic and abdominal cavities are found to be full of water, we tap the former underneath the breast-bone (sternum) or at pit of the stomach, passing the trocar upwards to either side of the body, just under the ribs and over the lungs; withdraw the rod and attach the larger rubber tube accompanying the pump; press upon the body and convey the water to a vessel at hand for the purpose. After you have drawn the water from above the lungs, partly withdraw the trocar and start it deeper in and under the lungs,—always having the rod in when puncturing,—withdraw the rod and proceed as before. When you have emptied this cavity, proceed to empty the abdominal by introducing the trocar at the lower and outer part of the body, reaching in every direction. Pressing the body with the hands will aid the flow.

If the trocar should become closed, detach the rubber tube and run the rod clear down to open it. After you have relieved the body of all the water, inject a quart of fluid in the same opening through the trocar. Close the incision with two stitches opposite each other.

Should it be a case where the legs are also full of water, begin to bandage at the toes and hip, and bandage by wrapping tightly, making slight incis-

ions on either side of the knee, underneath, and also at the ankle, just through the skin. This will facilitate the flow of water. After the legs have been reduced in size you can proceed to inject the carotid or brachial artery with from two to three quarts of fluid, not forgetting the value of having your subject on the incline, keeping the hands up and on top of the body. Should the arms and hands be dropsical, treat them the same as you would the leg.

When a body dying from dropsy is not relieved of the water, pockets or bladsacks will form on different parts of the body under the epidermis or cuticle, which should be relieved by puncturing. This is caused by the fluid driving it to the surface and is thus secreted. It is indicative of good results of embalming. Had the body been entirely relieved of water this would not occur.

CHILD-BED or (Puerperal) FEVER.

These are among the most difficult cases that may come under your observation, and yet, if treated properly, can be preserved as well as any case.

You should have access to the body in from four to twelve hours after death.

The first thing to be done is to put the body on an incline, the head at least twenty-four inches higher than the feet, raising it a little above the natural position, but not so as to prevent the blood from flowing from the head to the trunk of the body. The design is to allow all the blood to run to the trunk. This you should do at least an hour before you inject the artery.

Should the face and neck be swollen and darkened and there be purging from the nostrils and mouth, turn the body over, (for an instant only,) and allow the blood to run out; but never do this if you can avoid it, as the result is generally bad Open up the external jugular vein on both sides and gently rub the face and neck toward the incisions, using a sponge to absorb the blood. After the blood has run freely and you have begun to restore the color, you should then inject the brachial artery,—never use the femoral in this case,—inject slowly one quart, and then continue to work on the face and neck to get more blood out of the face. In the meantime the arterial capillaries will have taken up the fluid injected. You can then inject another quart. The quantity required de-

pends upon the nature of the case; from two to four quarts are all that is necessary for any case of this kind. Remember to keep the body on an incline all this time and for six to twenty-four hours after.

You should leave the incision made for the external jugular open until all the blood may have passed out. Should the corpse be chilled or rigid when you first see it, you should apply a thick soft towel, wrung out in water as hot as you can bear, and apply it often; it will soften the tissues and cause the blood to flow more freely.

Under this treatment you are sure of fine results, and your success will surprise the friends and yourself, too, and will prove a card of inestimable value.

The appearance of the face and neck will continue to improve for two or three days after embalment.

DROWNING OR FLOATERS.

If you can get the body soon after death, or, if the body has been drowned several days and the water is cold, the body has not been exposed to the sun, you can, by putting the corpse on an incline of two feet or more, cause the blood to leave the head and seek the trunk veins. If the head is much colored, you should use the external jugulars, and, in some cases, (if the corpse be a male,) you can use the internal jugular in connection with the carotid artery—using the artery for injection. The hot applications may prove of great value to you. When the pigment of the blood has made its deposit underneath the skin, it is very difficult to relieve the discoloration; but you will find the hot application very beneficial.

In cases of floaters, when the body has been dead several days, and has been exposed to the sun and weather, the flesh tissues have fallen down, and decomposition has set in to so great an extent that neither embalming nor ice can restore it. We can, in many cases, by the use of the fluids, make the corpse recognizable, destroy the smell, and arrest decomposition. You should exercise your own judgment, largely, as scarcely any two cases are alike. Would recommend the carotid or brachial artery for these cases.

SUN STROKE, OR STROKE BY LIGHTNING.

These cases are rare and always leave the head and face in a very bad condition. To treat them, place the body on an incline of as much as two feet or more, and allow it to remain so for one hour or more, if possible, before injecting an artery; but proceed to tap both external jugulars and press, (don't rub,) the face and neck toward the incision. If rigid, make warm applications to soften the blood and increase the flow. Use the common carotid or brachial artery,—if the former, the internal jugular may be tapped if the two external jugulars do not render sufficient relief. Inject one quart, and in half an hour inject another quart. If the body be a very large one use three or four quarts; but do not forget to keep the body on the incline from six to twenty-four hours.

This is the most rational and only correct treatment we have ever found, and will surely produce better and more satisfactory results than any one we have ever found or known.

ACCIDENTS AND SUICIDES.

These cases are numerous and various, and we will enumerate such as have come under our observation and treatment.

Where an arm or leg, or both have been severed, we find that the body has bled very profusely and you will have no occasion to relieve the body of any blood. Take up an artery accessible and begin to inject slowly until you see the fluid coming out of the principal artery at the wound, stop the pump, and with the forceps catch the artery, pull it out and tie the end, and as many more, either arteries or veins, as you can find; after which put a strong ligature around the limb just above, and draw it as tightly as you can. Sometimes the application of plaster of Paris, mixed with water, (in which dissolve some common salt,) to the consistency of thick cream is recommended; turn the stub up, wipe it off as dry as possible, and pour the plaster on and over the wound, holding it there until it hardens. Should there be a flap of skin and flesh, draw it over and sew or bandage it on. This will stop any little leakage that might occur. The use of either carotid, brachial or femoral artery is acceptable in such cases.

If the head or skull be crushed or broken, remove that part of the skull and wipe and cleanse the cavity, allowing all the blood to escape that will. Place the corpse on the incline, fill the cavity in the head with the plaster of Paris solution,

and when hardened give it the shape (by building up) of the skull, replace the broken part and sew the scalp together. If a part of the skin is gone, make a patch of good, strong muslin and sew that to the skin to fill out. Proceed to inject the body through either the brachial or carotid artery, using from one to four quarts, as the case may require.

If death was caused by severing the internal jugulars and carotid arteries, with your forceps find the ends of these vessels, tie them as well as you can; sew the incision partly, beginning at each end of the incision, and when within an inch or so of the center, fill the wound with the plaster of Paris solution and sew up tightly. Use the brachial artery, and inject one to three quarts of fluid, as the case may require. The vertebral artery, which runs up the back of the neck, will supply the brain and head, while not so direct as the carotid, will do the work just as successfully.

If by hanging, place the body on the incline as much as possible and open both external jugulars. Usually cases of this kind are rigid and cold, and are very difficult to restore. The hot towels should be used very freely, and you may have occasion to use one or both internal jugulars. The bruise on the neck, caused by the rope or cord, cannot be entirely restored, but you can change it from a dark blue to a red color. If you should use the internal jugular to relieve the blood, inject the carotid artery; if not, use the brachial, and use from two to four quarts of fluid, allowing a little time between each injection. The body should remain on the incline as in other difficult cases.

PARALYSIS.

Usually only one side or lower half of the body is affected. It is caused by a pressure upon the nerves at the spinal cord or at the base of the brain. The effect is to paralyze the muscles, causing a lack of action and a less supply of blood. The arteries gradually become diminished in size.

The arteries on the diseased side should not be used in injecting, but take up one on the other side and inject gradually, and make at least two or even three different injections, allowing from one to six hours between. There will be no occasion for tapping the veins of the neck, but the incline position should be used.

HEART DISEASE.

These deaths are attended by a fullness of all the vessels of the head, and the body also being full of blood, gives you much concern. Should the neck and face be swollen and discolored, and the corpse is purging, place the corpse on an incline as much as you can, and soon thereafter open one or both external jugulars. If possible, keep it in this position, allowing the blood to run an hour before injecting the carotid or brachial artery. Never use the femoral artery in a case of death by heart disease. Inject, for an ordinary sized body, from three to four pints; if a very large one, use from three to four quarts,—keeping the corpse on an incline for twelve to twenty-four hours, when it can be dressed and placed in the casket to be viewed as often or as long as required.

CANCERS.

In cancer of the breast, neck or face, wash the diseased spot with warm water, adding a little fluid to it, wipe it out and place some cotton, (absorbant cotton is best,) saturated with fluid and bandage it on, if possible, if not, use court plaster, or take a stitch in the skin on opposite sides of the sore, drawing the thread over to hold the cotton in possition. In some cases you can fill the place with plaster of Paris, so that it will remain there and color it the shade of the skin. Inject the brachial or carotid artery,—the femoral would probably be more preferable. Use one to two quarts of fluid, if the body is thin and emaciated. A slight incline is all that is necessary.

CANCER OF THE STOMACH.

Empty the stomach of whatever matter it might contain, return to an inclined position, and inject some fluid down the mouth or nostrils into the stomach, if possible. This will tend to allay the odor at once, then inject in the brachial or femoral artery as much fluid as you think necessary, allowing the body to remain on the incline from six to twelve hours, when it can be dressed and placed in the casket. Seldom, if ever, is it necessary to use external applications, except on the face and hands. The corpse will gradually improve in appearance for one or two days.

CANCER OF THE WOMB.

Usually these are the worst cases of cancer to

preserve, yet you need have no fear of success if you will but observe the treatment and execute it properly. First, have the uterus washed out thoroughly with warm water; saturate some cotton with fluid and crowd it up into the cavity until you have it filled, then place on a good thick diaper and thoroughly saturate it with fluid. Use the brachial artery and inject not less than one or usually more than two quarts of fluid. Keep the body on the incline from six to twelve hours, when it may be placed in the casket.

APOPLEXY.

Bodies dying from apoplexy will be found in a similar state to those dying from heart disease; the cause, however, is different. Death by apoplexy is caused by a rupture of one or more blood vessels in the brain, allowing the blood to escape either in the substance of the brain or within the membranes covering it. The walls of the vessels have undergone a change known as fatty degeneration; or there may be a calcareous deposit in the walls. Either condition renders the artery easily torn.

In all cases of apoplexy to be injected by the artery it is well to be exceedingly careful, and always use slow and gentle pressure with the pump, because the same condition is liable to be found in all the arteries of the body that is found in the head.

In all cases of apoplexy place the body immediately on the incline. If the face and neck are darkened and bloated, the head should be raised from two to three feet higher than the opposite extremity. At the same time open the external jugular veins. Treat the face by making pressure over it and inclining it downward. If the tissues are rigid the application of hot cloths will aid the flow of the surface blood to the opening. This should be done before injecting the fluid. In case this treatment should fail to relieve the bloating and discoloration, use also the internal jugular vein, and when ready to inject the fluid use the common carotid artery at the same place. The blood which

has escaped into the brain or its membranes can not be removed, but will become mingled with the fluid after injecting. Inject very slowly and carefully one quart of fluid, and in ten or fifteen minuter inject another quart,—watching the effect upon the face. If at any time you discover the face discoloring, stop injecting at once, and wait to see if the discoloration disappears. If it does, proceed to Inject until the body is sufficiently filled; if, on the other hand, the discoloration does not disappear speedily, wait half an hour before injecting more; then proceed to inject one or two quarts more, allowing time and treatment to produce the results.

A CHAPTER ON FUNERAL ETIQUETTE.

To be an undertaker and perform the duties of such in a manner that the appreciative people expect and approve, require of you an education in matters of an entirely different kind from that needed for the transaction of ordinary business. You are aware that the ceremonies that attend and follow death are the saddest of all, and are such as the public look upon as occasions for the deepest respect, which causes the position of the undertaker to be one by which his adaptations either commend him, or is the cause of his failure to be employed. It is fast becoming a custom to place the details of the funeral in the hands of the undertaker, and we are glad to know that such is the case, as it places a responsibility upon you such as compels you to be better informed on subjects concerning the profession, and places you in an honored and respectable position.

One of the first duties you owe the profession is cleanliness, and as neatness should follow cleanliness, it is necessary that you pride yourself in both if you desire to command respect in your position. Whether an undertaker is possessed of personal attractions or not it is his duty to make himself comely and as agreeable as the surroundings will permit; to appear neatly attired in good clothes, well-combed hair, clean hands, well-trimmed beard or cleanly-shaved face, and to have concealed be-

hind them a character and reputation such as are found only in gentlemen.

Upon entering the house to which you have been summoned, the first thing you should do would be to remove your hat. This is a polite custom in all cultured communities.

In case the occupants of the house to which you are called are intimate friends, you may be allowed to give a brief expression of sympathy, but otherwise we consider it an invasion to go into conversation of a sympathetic kind, unless you may be requested so to do, which is not often the case. This matter of sympathy is well in its place, and in one position it is badly disrespected when you use it for the purpose of advertising yourself. We do not consider that you are employed for any such a purpose, particularly at that moment when a home is supposed to better appreciate quietness.

If the person deceased is that of a gentleman there should be no objection to the undertaker's being allowed to view the body on his admission to the house, as it often needs a bandage that has not been thought of which can be by him placed in position. After viewing the remains and doing that, which in your judgment needs to be done at once, or after introducing your assistant for that purpose, it will be well to retire to the parlor or reception room and await the appearance of the person by whom you are to be informed concerning the arrangements of the funeral, and from him request such information as you may desire concerning clothing, etc. In case the subject is that of a female, you will not be permitted to introduce yourself in the manner prescribed for gentlemen, but in such a way as to obtain the information you

need concerning the condition of the body, clothing, etc., without allowing yourself to go beyond the bounds of propriety.

We believe it the duty of the undertaker to furnish the customary door scarf used to designate the place of death, and make it a rule to ascertain before leaving the house, if it is desired that you should place a scarf upon the door. There is no regularly adapted scarf for this purpose, but we believe custom has generally allowed the scarf for a person of thirty years and over to be black, for that of a person between the age of eighteen and thirty black and white, and for that one between infancy and the age of eighteen all white. This rule cannot be relied upon as pleasing to all, so it would be advisable to ask for information as to whether a scarf is wanted, and if so, what kind, before taking the responsibility of placing it on the door.

After having the body properly prepared and placed in such a part of the house as the friends may desire, it is your place to inform some friend of the family that the remains have been placed in the position requested, and that you will retire until such a time, when you will return and be pleased to perform any duty the friends may wish.

If the service is to be held at the house it is necessary that the undertaker receive the guests unless the family prefer some friend to perform that duty, and in case they should, it would be your duty to assist them in performing it. Should you be called upon to perform this duty, it would be your place to appear at the residence a few minutes (say one-half hour) before the time appointed for the funeral service to begin, and to be informed as to what

part of the house the minister will occupy; as to whether there will be music or not, and if so what position to assign the singers, and obtain any information that will enable you to carry out the friends' wishes without confusion, such as the place the family will occupy during the service. If they will take leave of the remains before the service or after, and if an invitation shall be given to the guests to view the remains after the service, or if it is their desire that the casket be closed before the minister introduces the service. In case the remains are to be viewed only until time for the service to begin, it will be your duty to occupy a position that will enable you to quietly request it of each person before being seated, after which you are supposed to know what seats it will be proper to assign them. When a funeral is to be held at a church and the diceased is to be escorted there by an order, it is the proper place for the order to be in advance of the remains, or at least all but those reserved for bearers who may occupy a position on each side of the hearse or be seated in a carriage preceding it as the occasion requires. It is customary at many places when having a body exposed to view at a church, to have the bearers convey the casket to the vestibule or auditorium, and after placing it in its proper position the congregation may pass out and view the remains while passing. In cases of this kind invariably request the immediate friends of the deceased to "take leave" at their home, so, after the congregation have passed out the casket may be closed and the relatives follow the remains to the hearse or their carriages.

The duty of the pall bearer is a responsible one,

and often an embarassing one through the fault of the undertaker, and in order to avoid confusion as much as possible it is best to pair them off before taking their position alongside the casket. Before they enter upon duty it would be well for you to take their hats to the carriage they will occupy, so that they may not be bothered with them in going out of the house or church. Another thing easily and quickly done is to remove the stools or pedestals at the time the casket is raised from them, and before the bearers start to the hearse.

The order of procession cannot come under this head, but we desire to point out the position as we admire it: The carriages containing the undertaker, clergyman and bearers precede the hearse, immediately following which are those containing the near relations and friends respectively. The undertaker or his assistant is expected to place the carriages in position and point out their occupants before leaving the house and church, and is expected to give attention to the first carriage, at least, in unloading at the cemetery. When entering the cemetery we are under the orders of the sexton who should designate the drivers we should follow.

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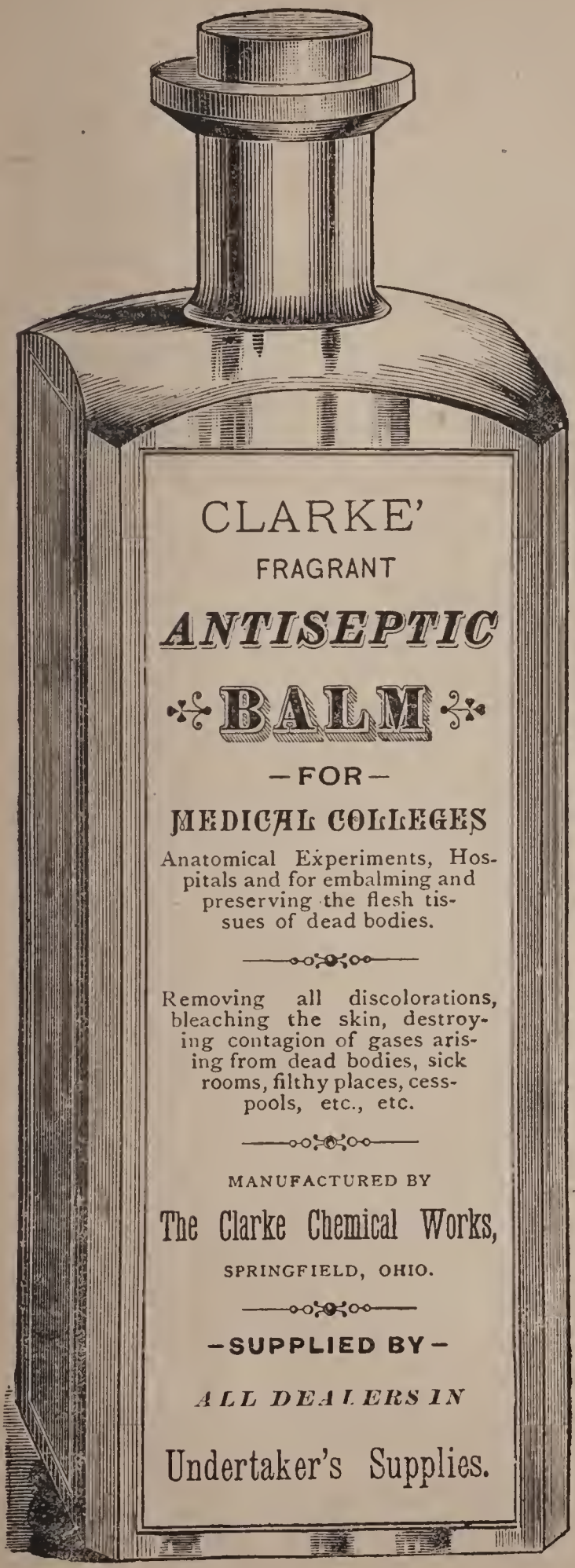

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ERRATA.

Page 11, read the 3d and 4th lines as follows: "The other to be tied around the artery below the incision when the fluid has made its appearance at that place."

Page 13, line 14th, read:"The nerve cord is usually rounder, firmer and harder than the artery."

Under the head of "Consumption," 8th line, read: "And let whatever will, run out of the mouth."

Page 22, 7th line from bottom, read: "Pockets or sacks."